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| APPLICATION NO.                                                                       | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.      | CONFIRMATION NO.       |
|---------------------------------------------------------------------------------------|-------------|----------------------|--------------------------|------------------------|
| 10/553,155                                                                            | 10/11/2005  | Haruo Suenaga        | 38836                    | 8991                   |
| 52054                                                                                 | 7590        | 05/04/2007           |                          |                        |
| PEARNE & GORDON LLP<br>1801 EAST 9TH STREET<br>SUITE 1200<br>CLEVELAND, OH 44114-3108 |             |                      | EXAMINER<br>VAN, QUANG T |                        |
|                                                                                       |             |                      | ART UNIT<br>3742         | PAPER NUMBER           |
|                                                                                       |             |                      | MAIL DATE<br>05/04/2007  | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/553,155

Applicant(s)

SUENAGA ET AL.

Examiner

Quang T. Van

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/11/05@11/01/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a heat-cooking chamber" recited in claims 1-2, 4 and 10, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The abstract of the disclosure is objected to because the legal phraseology such as "means" or "**comprises**" or "comprising" often used in patent claims should be avoided in the abstract. Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 6-9 are rejected under 35 U.S.C. 102(a) as being anticipated by Sato et al (US 6,759,964). Sato discloses a fault detection system comprising an inverter unit (1) for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element (11-1 to 11-6, col. 4, lines 13-15); heat-radiating fins (119) on which the semiconductor switching element (11) is mounted to radiate the heat generated by the semiconductor switching element (col. 4, lines 49-55); and a thermistor (15, col. 4, lines 63-67) for detecting the temperature of the switching element (col. 4, lines 29-34), wherein the thermistor (15) is soldered to a leg portion of the switching element or near to the leg portion thereof (col. 4, lines 63-64, figures 18-20).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3742

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maehara et al (US 4,967,051) in view of Sato et al (US 6,759,964). Maehara discloses a high-frequency heating apparatus such as microwave oven comprising a booster transformer (27), a high-voltage rectifier unit (col. 4, lines 61-62), a magnetron (32) for output of the high-voltage rectifier unit as microwaves and a heat-cooking chamber (10, figure 3) fed with microwaves radiated from the magnetron. However, Maehara does not disclose an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element; heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element; and a thermistor for detecting the temperature of the switching element, wherein the thermistor is soldered to a leg portion of the switching element or near to the leg portion thereof. Sato discloses an inverter unit (1) for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element (11-1 to 11-6, col. 4, lines 13-15); heat-radiating fins (119) on which the semiconductor switching element (11) is mounted to radiate the heat generated by the semiconductor switching element (col. 4, lines 49-55); and a thermistor (15, col. 4, lines 63-67) for detecting the temperature of the switching element (col. 4, lines 29-34), wherein the thermistor (15) is soldered to a leg portion of the switching element or near to the leg portion thereof (col. 4, lines 63-64, figures 18-20). It would have been obvious

to one having ordinary skill in the art at the time the invention was made to utilize in Maehara an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element; heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element; and a thermistor for detecting the temperature of the switching element, wherein the thermistor is soldered to a leg portion of the switching element or near to the leg portion thereof as taught by Sato in order to invert the power supply to a high-frequency power for supplying to the magnetron to heat the object.

8. Claims 1-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al (US 4,317,976) in view of Sato et al (US 6,759,964). Noda discloses a high-frequency heating apparatus such as microwave oven comprising a booster transformer (28, col. 5, line 8), a high-voltage rectifier unit (34, col. 5, lines 14-15), a magnetron (35) for output of the high-voltage rectifier unit (34) as microwaves and a heat-cooking chamber (col. 3, lines 23-24, figure 1) fed with microwaves radiated from the magnetron. However, Noda does not disclose an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element; heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element; and a thermistor for detecting the temperature of the switching element, wherein the thermistor is soldered to a leg portion of the switching element or near to the leg portion thereof. Sato discloses an inverter unit (1) for inverting a direct

current into an alternating current of a predetermined frequency by switching a semiconductor switching element (11-1 to 11-6, col. 4, lines 13-15); heat-radiating fins (119) on which the semiconductor switching element (11) is mounted to radiate the heat generated by the semiconductor switching element (col. 4, lines 49-55); and a thermistor (15, col. 4, lines 63-67) for detecting the temperature of the switching element (col. 4, lines 29-34), wherein the thermistor (15) is soldered to a leg portion of the switching element or near to the leg portion thereof (col. 4, lines 63-64, figures 18-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Noda an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element; heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element; and a thermistor for detecting the temperature of the switching element, wherein the thermistor is soldered to a leg portion of the switching element or near to the leg portion thereof as taught by Sato in order to invert the power supply to a high-frequency power for supplying to the magnetron to heat the object.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Smith (US 5,012,058) discloses a magnetron with full wave bridge inverter. Shoda et al (US 4,988,922) discloses a power supply for microwave discharge light source.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang T. Van whose telephone number is 571-272-4789. The examiner can normally be reached on 8:00Am 7:00Pm M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



QV  
April 27, 2007



Quang T Van  
Primary Examiner  
Art Unit 3742